

is not limited to a batch reaction, but also encompasses continuous reaction processes (See, for example, dependent claim 18).

Applicants submit that the pending claims remain patentable over Chin et al. and Kramer et al. for the reasons set forth in their above-mentioned responses. Principally, applicants submit that these references fail to disclose or suggest a process for preparing a sodium glyphosate composition in which water is added to the reactor in an amount from about 10% to about 40% by weight of the particulate glyphosate acid, sodium hydroxide, water and optional adjuvant added to the reactor and using the heat of reaction to partially evaporate the water and form a sodium glyphosate paste having a moisture content of from about 2% to about 20% by weight.

The deficiencies in the teaching of Chin et al. and Kramer et al. previously noted by applicants with respect to a *prima facie* showing of obviousness cannot be overcome by resort to Massmann et al.

Massmann et al. is referenced at paragraph [0015] of the subject application and describes a process for forming an ammonium glyphosate paste by mixing glyphosate acid, ammonia in an amount of about 0.8 to about 1.25 moles of ammonia per mole of glyphosate acid, and water in an amount of about 10% to about 25% by weight of all materials mixed, thereby causing a reaction of the glyphosate acid and ammonia that generates heat causing partial evaporation of the water and forms the ammonium glyphosate paste having a moisture content of about 5% to about 20% by weight. The paste can optionally be extruded to form dried granules. In particular, Massmann et al. note the surprising ability of the ammonium glyphosate paste to serve as an intermediate in the preparation of dry granular herbicidal

compositions due to the superior surfactant absorbency and/or adsorbency properties exhibited by the paste without the restrictions imposed by solid-state reaction processes (See page 14, lines 5-18 of Massmann et al.) such as those described by Chin et al. and Kramer et al. (referenced by Massmann et al. at page 4, lines 11-16; and page 5, lines 11-20).

As acknowledged by the Office, Massmann et al. is directed exclusively to a process for forming a "downstream processable" ammonium glyphosate paste and fails to teach reacting glyphosate acid with sodium hydroxide as called for in the pending claims.

On page 4 of the Office action, the Office contends that one skilled in the art would have been motivated to substitute the ammonium base of Massmann et al. with the sodium hydroxide base of Chin et al. because Chin et al. prefer sodium hydroxide. However, while sodium hydroxide is listed among the most preferred Bronsted bases for use in the so-called "dry-reactive method" of Chin et al. (performed essentially without the addition of any extraneous solvent (e.g., water) and under conditions where the water of reaction volatilizes and is driven off by the resultant heat of reaction so that a solid end product can be formed in a single step), that preference does not teach or suggest the feasibility or desirability of substituting sodium hydroxide for ammonia in the markedly different process of Massmann et al. for forming an ammonium glyphosate paste. The proper amount of water addition necessary for formation of a glyphosate salt paste will vary depending upon, among other things, the base utilized in the process, and Massmann et al. do not disclose or suggest how much water is to be added to the reaction mixture to form a glyphosate salt paste other than when reacting ammonia and glyphosate acid. Moreover, the substitution proposed by the Office is in fact contrary to

the teachings of the cited art. To the extent Massmann et al. suggest anything regarding sodium glyphosate compositions, the reference teaches that such compositions are disfavored as compared to ammonium glyphosate when preparing dry glyphosate formulations due to the hygroscopic nature of sodium glyphosate and its tendency to reabsorb water, resulting in a loss of free-flowing properties (See page 3, lines 12-23 of Massmann et al.). Thus, Massmann et al. discourage one from substituting sodium hydroxide into their disclosed process.

Also on page 4 of the Office action, the Office further asserts that one of ordinary skill in the art would have been motivated to combine the cited references in order to use the metal salt reaction process of Chin et al. in the continuous process of Kramer et al. or Massmann et al. However, as noted on the previous page of the Office action, the process for preparing metal salt glyphosate compositions disclosed by Chin et al. is itself a continuous process (See, for example, the Abstract). Thus, resort to Kramer et al. or Massmann et al. to obtain the advantages of continuous processing is unnecessary and certainly does not support the proposed motivation to combine the cited references.

To support the contention that it would have been *prima facie* obvious for a skilled artisan to make a glyphosate paste with a low moisture content, the Office asserts that exothermic processes of reacting glyphosate acid with bases such as ammonia or sodium were known. As is clear from the cited art, applicants do not contend that exothermic processes of reacting glyphosate acid with ammonia, sodium hydroxide or other bases to make glyphosate compositions having low moisture content were previously unknown. However, applicants maintain that the prior art does not teach or suggest the process defined in independent

claims 1 and 19, including mixing glyphosate acid, sodium hydroxide in a reactor and adding water to the reaction mass (including the water produced by the reaction of the glyphosate acid and sodium hydroxide) in an amount of from about 10% to about 40% by weight of all materials added to the reactor and using the heat of reaction to partially evaporate the water and form a sodium glyphosate paste having a moisture content of from about 2% to about 20% by weight. That the processes of Chin et al, Kramer et al. and Massmann et al. are said to produce compositions having a moisture content (i.e., 10% or less, 2%, and 5 to 20%, respectively) that overlaps the moisture content of the sodium glyphosate paste of independent claims 1 and 19 does not render the claimed process for making a sodium glyphosate paste obvious. The "dry reactive method" of Chin et al. results in a solid sodium glyphosate formulation (See col. 4, lines 51-53 of Chin et al.), not a paste. Kramer et al. is directed to preparation of ammonium glyphosate compositions in the form of a powder (See col. 3, lines 37-40) and its teaching does not extend to or suggest preparation of a sodium glyphosate paste. Although Massmann et al. describes a process for the preparation of an ammonium glyphosate composition in the form of a paste suitable for downstream processing to prepare a dry granular glyphosate composition, the reference does not teach or suggest the suitability of the disclosed process for producing a paste of a glyphosate salt other than ammonium glyphosate, and in fact discourages one skilled in the art from using the disclosed process to produce a sodium glyphosate composition.

For the reasons stated above, independent claims 1 and 19 and claims dependent therefrom are respectfully submitted as patentable over the teachings of Massmann et al., Chin et al. and Kramer et al.

**Obviousness-Type Double Patenting Rejection**

Applicants respectfully request reconsideration of the rejection of claims 1-33 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-44 of U.S. Patent No. 6,605,568 (Massmann et al.) or claims 1-127 of U.S. Patent No. 6,734,142 (Massmann et al.), further in view of U.S. Patent No. 5,070,197 (Chin, et al.).

Contrary to the assertion by the Office, substitution of sodium hydroxide for the ammonium base of the processes claimed in the Massmann et al. references would not have been obvious. The claims of the Massmann et al. references provide no teaching or suggestion of the suitability of the processes claimed therein for preparation of glyphosate salt compositions other than ammonium glyphosate. While sodium hydroxide and ammonia are both listed among the Bronsted bases for use in the so-called "dry-reactive method" of Chin et al. to form a solid pesticidal end product, that disclosure does not render sodium hydroxide equivalent to an ammonium base for substitution in the markedly different processes claimed in the Massmann et al. references for forming an ammonium glyphosate paste.

Accordingly, and in further view of the response to the rejection under 35 U.S.C. § 103(a), the processes defined in claims 1-33 are respectfully submitted as patentably distinct from the invention as claimed in U.S. Patent No. 6,605,568 and U.S. Patent No. 6,734,142, further in view of Chin et al.

Applicants respectfully request allowance of pending claims 1-33.

It is believed that no fees are due in connection with this response. However, the Office is hereby authorized to charge

any fee deficiency in connection with this response to Deposit  
Account No. 19-1345.

Respectfully submitted,

*Michael J. Vander Molen*

Michael J. Vander Molen, Reg. No. 57,274  
SENNIGER POWERS  
One Metropolitan Square, 16th Floor  
St. Louis, Missouri 63102  
(314) 231-5400

MJV/VMK/lam